

FIG. 1A

SCAN BOX	10	20	30	40	50	60
CONSENSUS	*.....*	*.....*	*.....*	*.....*	*.....*	*.....*
MDZ3	1 PGPEAFRQFRQFRYQE	18 ASGPREALSRLRELCHQWLRPEVHTKEQ	25 ASGPREALSRLRELCHQWLRPEVHTKEQ	32 ASGPREALSRLRELCHQWLRPEVHTKEQ	39 ASGPREALSRLRELCHQWLRPEVHTKEQ	46 ASGPREALSRLRELCHQWLRPEVHTKEQ
gi 11136033	36 PSPETFRLLRFRQFRYQE	43 AAGPQEAALRGLQELCRRWLRPELHTKEQ	50 AAGPQEAALRGLQELCRRWLRPELHTKEQ	57 AAGPQEAALRGLQELCRRWLRPELHTKEQ	64 AAGPQEAALRGLQELCRRWLRPELHTKEQ	71 AAGPQEAALRGLQELCRRWLRPELHTKEQ
gi 6226799	36 SVWETSHLHFRQLRYHE	43 TSGPQEAALSRLRELCCRWLRPEARTKAQ	50 TSGPQEAALSRLRELCCRWLRPEARTKAQ	57 TSGPQEAALSRLRELCCRWLRPEARTKAQ	64 TSGPQEAALSRLRELCCRWLRPEARTKAQ	71 TSGPQEAALSRLRELCCRWLRPEARTKAQ
gi 3046745	35 PSPEASHLRRFRFRFQE	42 AAGPREALSRLRELCHQWLRPEMRTKEQ	49 AAGPREALSRLRELCHQWLRPEMRTKEQ	56 AAGPREALSRLRELCHQWLRPEMRTKEQ	63 AAGPREALSRLRELCHQWLRPEMRTKEQ	70 AAGPREALSRLRELCHQWLRPEMRTKEQ
gi 3006231	47 RGPERSRQFRGFRYPE	54 AAGPREALSRLRELCHQWLRPEMRTKEQ	61 AAGPREALSRLRELCHQWLRPEMRTKEQ	68 AAGPREALSRLRELCHQWLRPEMRTKEQ	75 AAGPREALSRLRELCHQWLRPEMRTKEQ	82 AAGPREALSRLRELCHQWLRPEMRTKEQ
gi 1731420	49 PDPEIFRQFRFRFCYQN	56 TFGPREALSRLRELCHQWLRPEINTKEQ	63 TFGPREALSRLRELCHQWLRPEINTKEQ	70 TFGPREALSRLRELCHQWLRPEINTKEQ	77 TFGPREALSRLRELCHQWLRPEINTKEQ	84 TFGPREALSRLRELCHQWLRPEINTKEQ
gi 11136100	43 LKQELCRQLFRQFCYQD	50 SPGPREALSRLRELCCQWLRPEIHTKEQ	57 SPGPREALSRLRELCCQWLRPEIHTKEQ	64 SPGPREALSRLRELCCQWLRPEIHTKEQ	71 SPGPREALSRLRELCCQWLRPEIHTKEQ	78 SPGPREALSRLRELCCQWLRPEIHTKEQ
gi 2978255	45 LGQEVFRLRFRQLRYQE	52 TLGPREALIQLRALCHQWLRPDINTKEQ	59 TLGPREALIQLRALCHQWLRPDINTKEQ	66 TLGPREALIQLRALCHQWLRPDINTKEQ	73 TLGPREALIQLRALCHQWLRPDINTKEQ	80 TLGPREALIQLRALCHQWLRPDINTKEQ

70	80	90
CONSENSUS	*.....*	*.....*
MDZ3	58 ILPGEIQAWVQEHHPESGEEAVTLVEDLERELDGPRQV	65 ILPGEIQAWVQEHHPESGEEAVTLVEDLERELDGPRQV
gi 11136033	93 ILPREFYAWIREHGPESGKALAAMVEDLteraleakvp	100 ILPREFYAWIREHGPESGKALAAMVEDLteraleakvp
gi 6226799	93 ILPGEIRTWQLHHPGSGEEAVTLVEELQKLDGPAIQV	100 ILPGEIRTWQLHHPGSGEEAVTLVEELQKLDGPAIQV
gi 3046745	92 ILPQEIQSRVQELHHPESGEEAVTLVEGMQRELGRLRQV	99 ILPQEIQSRVQELHHPESGEEAVTLVEGMQRELGRLRQV
gi 3006231	104 ILPGNLQSWVREHQHPESGEEVVLLEYLERQLDEPAPQV	111 ILPGNLQSWVREHQHPESGEEVVLLEYLERQLDEPAPQV
gi 1731420	106 ILPKELQVWLQEYRPDSGEEAVTLLEDLE - -LDLSGQV	113 ILPKELQVWLQEYRPDSGEEAVTLLEDLE - -LDLSGQV
gi 11136100	100 ILPGDLQAWVHEHYHPESGEEAVTILEDLERTGDEAVLQV	107 ILPGDLQAWVHEHYHPESGEEAVTILEDLERTGDEAVLQV
gi 2978255	102 ILPEELQTLVKDQHQLENGEEVVTLEDLERQIDILGRP	109 ILPEELQTLVKDQHQLENGEEVVTLEDLERQIDILGRP

FIG. 1B



Applicants: Shannon et al. AEOMICA-012
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For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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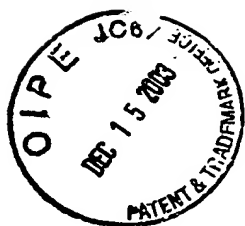
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KRAB MOTIF
1 VTFFDVAVYFSQEEWEQLDPAQKNLYRDVM-LENYSNLVSLG-FKVPKP-----DLISQL 53
230 gpFKDMALAFPEEWRHVTPAQIDCFGEVvePQDCR--VSPG-GGSKEK-----EAKPPQ 281
104 VSFKDVAVDFTQEEWRQLDPEKIAAGDVM-LENYSHLVSVG-YDYHQAKhhgVEVKEV 161
1 MAFRDVAVDFTQDEWRLLSPAQRTLYREVM-LENYSNLVSLG-ISFSKP-----ELITQL 53
14 VTFDDVAVTFTKEEWGQLDLAQRTLYQEV-LENCGLLVSLG-CPVPKA-----ELICHL 66
14 VCFEDVAMAFTEQEEWEQLDLAQRTLYREV-LETWEHIVSLG1-FLSKS-----DVISQL 66
8 VTFKDVAVVFSEEEELQLDLAQRKLYRDVM-LENFRNVSVGhQSTP-----DGLPQL 59
3 LTFKDVAVVFTEEEELGLLDPVQRNLYQDVM-LENFRNLLSVGhHPFK-----HDVFL 54

*.....*.....*.....*.....*.....*.....*.....*.....*.....*
54 EQGEEPWI 61
282 EDLKgalv 289
162 EQGEEPWI 169
54 EQGKETWR 61
67 EHGQEPWT 74
67 EQEEDLCR 74
60 EREEKLWM 67
55 EKEKKLDI 62

*.....*.....*.....*.....*.....*.....*.....*.....*.....*
54 EQGEEPWI 61
282 EDLKgalv 289
162 EQGEEPWI 169
54 EQGKETWR 61
67 EHGQEPWT 74
67 EQEEDLCR 74
60 EREEKLWM 67
55 EKEKKLDI 62
```

FIG. 1C



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MDZ7 AND MDZ12

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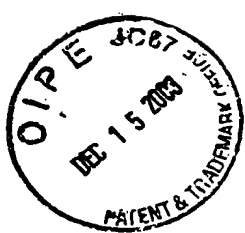
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1 2 3 4 5 6 7 8

OPEN READING FRAME 1635 bp, 544 a.a

FIG. 2



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nt: SEQ ID NO: 1

aa: SEQ ID NO: 3

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1   c gga tag cac tgg cga ccc tag cgg gtg aga ggc cct
38  tca ggg ccg cgg cgg gtt gag cgc acc atc aca tct aag
77  cca tca gca agt ttg ttg gtt tta atc tcc aaa ata cgt
116 ctt gat ttt gtc tga ctc ttt gcc acc acc ctg atc taa
155 gcc ctt atc atc tgc ttg aat cac taa ctt gtc tcc act
194 tgc agt ttt taa aag agt tgc ttc cat ttg act ttt tct
233 gtc tgc tgt acc aac ata tga gtt tca gga ggg gtc att
272 gat gca gtc att ctc agt ctc ctc gga ggg agt ctg aag

   M   L   K   E   H   P   E   M   A   E   A   P   Q
311 ATG CTT AAA GAG CAT CCA GAG ATG GCG GAA GCT CCT CAG

   Q   Q   L   G   I   P   V   V   K   L   E   K   E
350 CAG CAG TTG GGT ATT CCT GTG GTG AAA CTG GAG AAA GAG

   L   P   W   G   R   G   R   E   D   P   S   P   E
389 TTG CCA TGG GGC AGA GGA AGG GAG GAC CCT AGT CCA GAG

   T   F   R   L   R   F   R   Q   F   R   Y   Q   E
428 ACT TTT CGG CTG AGG TTT CGG CAG TTC CGC TAC CAG GAG

   A   A   G   P   Q   E   A   L   R   G   L   Q   E
467 GCA GCT GGA CCC CAG GAA GCT CTT AGG GGG CTC CAG GAG

   L   C   R   R   W   L   R   P   E   L   H   T   K
506 CTC TGT CGT CGG TGG CTG AGG CCC GAG TTG CAC ACC AAG

   E   Q   I   L   E   L   L   V   L   E   Q   F   L
545 GAG CAG ATC CTG GAG CTG CTG GTG CTG GAG CAG TTC CTC

   T   I   L   P   R   E   F   Y   A   W   I   R   E
584 ACT ATC CTG CCC CGC GAG TTC TAC GCC TGG ATC CGG GAG

   H   G   P   E   S   G   K   A   L   A   A   M   V
623 CAT GGC CCA GAG AGT GGC AAG GCC CTG GCC GCC ATG GTG
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FIG. 3A

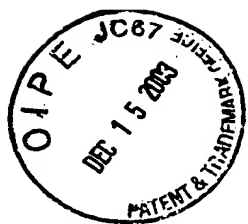


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CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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662	E	D	L	T	E	R	A	L	E	A	K	A	V
	GAG	GAC	CTG	ACA	GAA	AGA	GCA	CTG	GAG	GCC	AAG	GCG	GTT
701	P	C	H	R	Q	G	E	Q	E	E	T	A	L
	CCA	TGC	CAC	AGG	CAG	GGA	GAG	CAG	GAG	GAA	ACA	GCA	CTT
740	C	R	G	A	W	E	P	G	I	Q	L	G	P
	TGC	AGA	GGC	GCT	TGG	GAG	CCA	GGC	ATC	CAG	CTG	GGG	CCA
779	V	E	V	K	P	E	W	G	M	P	P	G	E
	GTG	GAG	GTT	AAG	CCT	GAA	TGG	GGG	ATG	CCC	CCT	GGG	GAA
818	G	V	Q	G	P	D	P	G	T	E	E	Q	L
	GGA	GTT	CAA	GGT	CCA	GAC	CCA	GGT	ACC	GAG	GAG	CAG	CTC
857	S	Q	D	P	G	D	E	T	R	A	F	Q	E
	AGT	CAG	GAC	CCT	GGA	GAT	GAG	ACA	CGG	GCC	TTC	CAG	GAG
896	Q	A	L	P	V	L	Q	A	G	P	G	L	P
	CAA	GCA	CTA	CCT	GTT	CTG	CAG	GCG	GGT	CCT	GGC	CTC	CCC
935	A	V	N	P	R	D	Q	E	M	A	A	G	F
	GCA	GTG	AAT	CCC	AGA	GAC	CAA	GAG	ATG	GCA	GCT	GGG	TTC
974	F	T	A	G	S	Q	G	L	G	P	F	K	D
	TTT	ACT	GCT	GGA	TCG	CAG	GGG	TTG	GGG	CCA	TTT	AAA	GAT
1013	M	A	L	A	F	P	E	E	E	W	R	H	V
	ATG	GCC	CTG	GCC	TTC	CCT	GAG	GAG	GAG	TGG	AGG	CAT	GTG
1052	T	P	A	Q	I	D	C	F	G	E	Y	V	E
	ACC	CCA	GCC	CAG	ATA	GAC	TGC	TTT	GGG	GAG	TAT	GTG	GAA
1091	P	Q	D	C	R	V	S	P	G	G	G	S	K
	CCG	CAG	GAC	TGC	AGG	GTC	TCT	CCA	GGC	GGT	GGG	AGC	AAG
1130	E	K	E	A	K	P	P	Q	E	D	L	K	G
	GAA	AAG	GAG	GCA	AAA	CCC	CCA	CAG	GAA	GAC	CTG	AAA	GGG
1169	A	L	V	A	L	T	S	E	R	F	G	E	A
	GCG	CTG	GTG	GCA	CTG	ACA	TCA	GAG	AGG	TTT	GGG	GAA	GCC
1208	S	L	Q	G	P	G	L	G	R	V	C	E	Q
	TCT	CTC	CAG	GGC	CCT	GGG	CTC	GGA	AGG	GTC	TGT	GAG	CAG
1247	E	P	G	G	P	A	G	S	A	P	G	L	P
	GAG	CCT	GGT	GGC	CCT	GCA	GGC	AGT	GCG	CCT	GGG	CTT	CCT

FIG. 3B

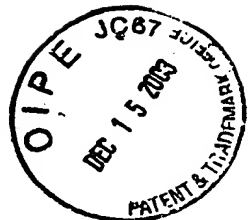


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For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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1286	P	P	Q	H	G	A	I	P	L	P	D	E	V
	CCT	CCC	CAG	CAC	GGT	GCC	ATC	CCC	CTG	CCT	GAC	GAA	GTC
1325	K	T	H	S	S	F	W	K	P	F	Q	C	P
	AAA	ACC	CAC	AGC	TCC	TTC	TGG	AAG	CCT	TTC	CAG	TGC	CCT
1364	E	C	G	K	G	F	S	R	S	S	N	L	V
	GAG	TGT	GGG	AAA	GGA	TTC	AGT	CGG	AGC	TCC	AAT	CTC	GTC
1403	R	H	Q	R	T	H	E	E	K	S	Y	G	C
	AGG	CAC	CAG	CGA	ACC	CAC	GAA	GAG	AAG	TCT	TAT	GGC	TGT
1442	V	E	C	G	K	G	F	T	L	R	E	Y	L
	GTG	GAG	TGT	GGG	AAG	GGC	TTT	ACC	CTG	AGA	GAG	TAC	CTG
1481	M	K	H	Q	R	T	H	L	G	K	R	P	Y
	ATG	AAG	CAC	CAG	AGA	ACC	CAC	CTG	GGA	AAG	AGG	CCC	TAC
1520	V	C	S	E	C	W	K	T	F	S	Q	R	H
	GTG	TGC	AGC	GAG	TGC	TGG	AAA	ACC	TTC	AGC	CAG	AGA	CAC
1559	H	L	E	V	H	Q	R	S	H	T	G	E	K
	CAC	CTG	GAG	GTG	CAC	CAG	CGC	AGC	CAC	ACT	GGG	GAG	AAG
1598	P	H	K	C	G	D	C	W	K	S	F	S	R
	CCC	CAC	AAG	TGC	GGG	GAC	TGC	TGG	AAG	AGC	TTC	AGC	CGC
1637	R	Q	H	L	Q	V	H	R	R	T	H	T	G
	AGG	CAG	CAC	CTG	CAG	GTG	CAC	CGG	AGG	ACG	CAC	ACC	GGG
1676	E	K	P	Y	T	C	E	C	G	K	S	F	S
	GAG	AAG	CCC	TAC	ACC	TGC	GAG	TGT	GGC	AAG	AGC	TTC	AGC
1715	R	N	A	N	L	A	V	H	R	R	A	H	T
	AGG	AAT	GCC	AAT	CTG	GCG	GTG	CAC	CGG	CGT	GCC	CAC	ACT
1754	G	E	K	P	Y	G	C	Q	V	C	G	K	R
	GGC	GAG	AAG	CCA	TAT	GGG	TGC	CAG	GTG	TGC	GGG	AAG	CGG
1793	F	S	K	G	E	R	L	V	R	H	Q	R	I
	TTC	AGC	AAA	GGG	GAG	CGG	CTG	GTC	CGA	CAC	CAG	AGA	ATC
1832	H	T	G	E	K	P	Y	H	C	P	A	C	G
	CAT	ACA	GGG	GAG	AAG	CCC	TAC	CAC	TGT	CCT	GCC	TGC	GGG
1871	R	S	F	N	Q	R	S	I	L	N	R	H	Q
	CGA	AGC	TTC	AAC	CAG	AGG	TCC	ATC	CTC	AAC	CGG	CAC	CAG

FIG. 3C

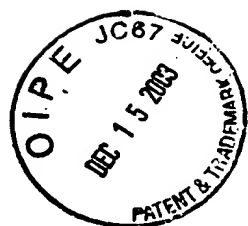


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For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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	K	T	Q	H	R	Q	E	P	L	V	Q	*	
1910	AAG	ACC	CAG	CAC	CGC	CAG	GAG	CCG	CTG	GTG	CAG	TGA	gca
1949	tag	cag	gtg	gca	ggc	agc	acc	atc	att	cat	ctt	cgg	ata
1988	gca	ctg	gcg	acc	cta	gcg	ggg	gag	agg	ccc	ttc	agg	gcc
2027	gcg	gcg	ggg	tga	gcg	cac	cat	cac	atc	taa	gcc	atc	agc
2066	aag	ttt	ggt	ggg	ttt	aat	ctc	caa	aat	acg	tct	tga	ttt
2105	tgt	ctg	act	ctt	tgc	cac	cac	cct	gat	cta	agc	cct	tat
2144	cat	ctg	ctt	gaa	tca	cta	act	tgt	ctc	cac	ttg	cag	ttt
2183	tta	aaa	gag	ttg	ctt	cca	ttt	gac	ttt	ttc	tgt	ctg	ctg
2222	tac	caa	cat	atg	agt	ttc	agg	agg	ggg	cat	tga	tgc	agt
2261	cat	tct	cag	tct	cct	cgg	agg	gag	tct	gaa	gat	gct	taa
2300	aga	gca	tcc	aga	gat	ggc	gga	agc	tcc	tca	gca	gca	gtt
2339	ggg	tat	tcc	tgt	ggg	gaa	act	gga	gaa	aga	gtt	gcc	atg
2378	ggg	cag	agg	aag	gga	gga	ccc	tag	tcc	aga	gac	ttt	tcg
2417	gct	gag	gtt	tcg	gca	gtt	ccg	cta	cca	gga	ggc	agc	tgg
2456	acc	cca	gga	agc	tct	tag	ggg	gct	cca	gga	gct	ctg	tcg
2495	tcg	gtg	gct	gag	gcc	cga	gtt	gca	cac	caa	gga	gca	gat
2534	cct	gga	gct	gct	ggg	gct	gga	gca	gtt	cct	cac	tat	cct
2573	gcc	ccg	cga	gtt	cta	cgc	ctg	gat	ccg	gga	gca	tgg	ccc
2612	aga	gag	tgg	caa	ggc	cct	ggc	cgc	cat	ggg	gga	gga	cct
2651	gac	aga	aag	agc	act	gga	ggc	caa	ggc	ggg	tcc	atg	cca
2690	cag	gca	ggg	aga	gca	gga	gga	aac	agc	act	ttg	cag	agg
2729	cgc	ttg	gga	gcc	agg	cat	cca	gct	ggg	gcc	agt	gga	ggg
2768	taa	gcc	tga	atg	ggg	gat	gcc	ccc	tgg	gga	agg	agt	tca
2807	agg	tcc	aga	ccc	agg	tac	cga	gga	gca	gct	cag	tca	gga
2846	ccc	tgg	aga	tga	gac	acg	ggc	ctt	cca	gga	gca	agc	act

FIG. 3D



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MDZ7 AND MDZ12

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2885 acc tgt tct gca ggc ggg tcc tgg cct ccc cgc agt gaa
2924 tcc cag aga cca aga gat ggc agc tgg gtt ctt tac tgc
2963 tgg atc gca ggg gtt ggg gcc att taa aga tat ggc cct
3002 ggc ctt ccc tga gga gga gtg gag gca tgt gac ccc agc
3041 cca gat aga ctg ctt tgg gga gta tgt gga acc gca gga
3080 ctg cag ggt ctc tcc agg cgg tgg gag caa gga aaa gga
3119 ggc aaa acc ccc aca gga aga cct gaa agg ggc gct ggt
3158 ggc act gac atc aga gag gtt tgg gga agc ctc tct cca
3197 ggg ccc tgg gct cgg aag ggt ctg tga gca gga gcc tgg
3236 tgg ccc tgc agg cag tgc gcc tgg gct tcc tcc tcc cca
3275 gca cgg tgc cat ccc cct gcc tga cga agt caa aac cca
3314 cag ctc ctt ctg gaa gcc ttt cca gtg ccc tga gtg tgg
3353 gaa agg att cag tgc gag ctc caa tct cgt cag gca cca
3392 gcg aac cca cga aga gaa gtc tta tgg ctg tgt gga gtg
3431 tgg gaa ggg ctt tac cct gag aga gta cct gat gaa gca
3470 cca gag aac cca cct ggg aaa gag gcc cta cgt gtg cag
3509 cga gtg ctg gaa aac ctt cag cca gag aca cca cct gga
3548 ggt gca cca gcg cag cca cac tgg gga gaa gcc cca caa
3587 gtg cgg gga ctg ctg gaa gag ctt cag ccg cag gca gca
3626 cct gca ggt gca ccg gag gac gca cac cgg gga gaa gcc
3665 cta cac ctg cga gtg tgg caa gag ctt cag cag gaa tgc
3704 caa tct ggc ggt gca ccg gcg tgc cca cac tgg cga gaa
3743 gcc ata tgg gtg cca ggt gtg cgg gaa gcg gtt cag caa
3782 agg gga gcg gct ggt ccg aca cca gag aat cca tac agg
3821 gga gaa gcc cta cca ctg tcc tgc ctg cgg gcg aag ctt
3860 caa cca gag gtc cat cct caa ccg gca cca gaa gac cca

FIG. 3E

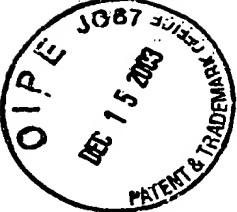


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MDZ7 AND MDZ12

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3899 gca ccg cca gga gcc gct ggt gca gtg agc ata gca ggt
3938 ggc agg cag cac cat cat tca tct t

FIG. 3F



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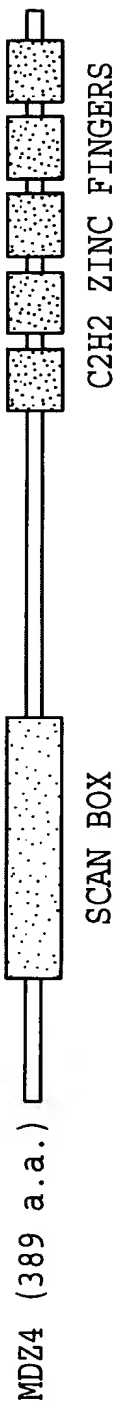


FIG. 4A

SCAN BOX

CONSENSUS

MDZ4

gi 11136033

gi 6226799

gi 3046745

gi 3006231

gi 1731420

gi 11136100

gi 2978255

1 PGPEAFRQRFRQFRYQE

42 ht rEiFRRRFRQFCYQE

36 SVWETSHLHFRQLRYHE

35 PSPEASHLRRFRFRFQE

47 RGPERSRQRFRGFRYPE

49 PDPEIFRQRFRRCYQN

43 LKQELCRQLFRQFCYQD

45 LGQEVFRLRFRQLRYQE

118 PGLEAARLRFRCFRYED

10 20 30 40 50 60

ASGPREALSRLRELCHQWLRPEVHTKEQILELLVLEQFLT

SPGPREALQRLQELCHQWLRPEMHTKEQILELLVLEQFLT

TSGPQEALSRLRELCRRWLRPEARTKAQILELLVLEQFLS

AAGPREALSRLRELCHGWLRRPEMRTKEQILELLVLEQFLT

AAGPREALSRLRELCHGWLRRPEMHTKEQILELLVLEQFLT

TFGPREALSRLRELCHQWLRPEINTKEQILELLVLEQFLS

SPGPREALSRLRELCCQWLKPEIHTKEQILELLVLEQFLT

TLGPREALIQRLALCHQWLRPDNTKEQILELLVLEQFLT

AIGPQEALAQRLCHQWLRPEVHSKEQVLELLVLEQFLG

57

98

92

91

103

105

99

101

174

70 80 90

CONSENSUS

MDZ4

gi 11136033

gi 6226799

gi 3046745

gi 3006231

gi 1731420

gi 11136100

gi 2978255

58 ILPGEIQAWVQEHHPESGEEAVTLVEDLERELDGPQQV

99 ILPEELQAWVRQHRPVS GEEAVTLVEDLERELDDPGEQV

93 ILPGEIRTWVQLHHPGSGEEAVLVEELQKLDGPAIQV

92 ILPQEIQSRVQELHHPESGEEAVTLVEGMQRELGRLRQV

104 ILPGNLQSWVREQHPESGEEVVLLEYLERQLDEPAPQV

106 ILPKELQVWLQEYRPDSGEEAVTLLEDLE--LDLSGQQV

100 ILPGDLQAWVHEHYHYPESGEEAVTILEDLERGTDEAVLQV

102 ILPEELQTLVKDHQLEN GEEVVTILEDLERQIDILGRP V

175 ALPPEIQAVQVQGWPGSPPEEAAALVDRLRWELDGP RKWV

96

137

131

130

142

142

138

140

213

FIG. 4B



Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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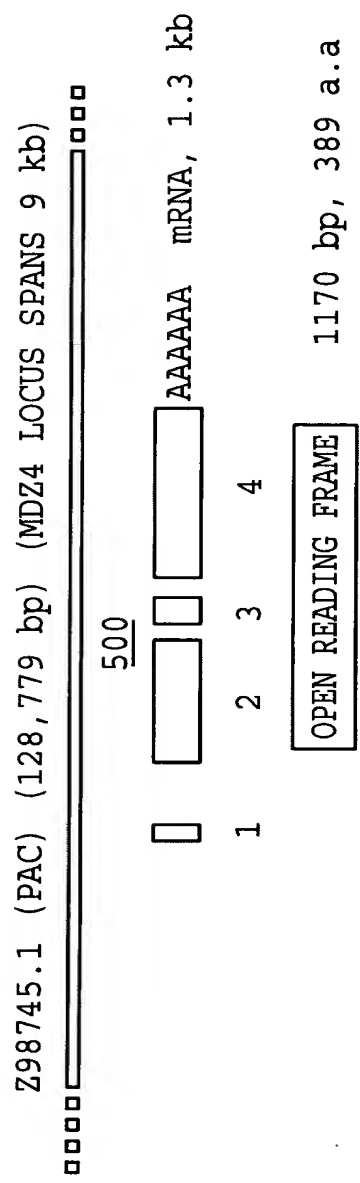


FIG. 5



Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

12/32

nt: SEQ ID NO: 3027

aa: SEQ ID NO: 3029

```
1 gtt gtc aag gat tca gag cag atg tga tct gcg cta ggt
40 ggc atc tcc tct cac gga tgc ctc gat ctc ggg gtt tcc
79 aga aga aaa gat caa ggg aga att atc aag aat aga tta
118 ttt ttc tga ata gtt aaa cct ttg ATG GCC ATA ACC TTG
157 T L Q T A E M Q E G L L A
ACC CTT CAG ACT GCA GAG ATG CAG GAA GGA CTT CTG GCA
196 V K V K E E E E E H S C G
GTG AAG GTA AAG GAG GAA GAG GAG GAA CAT TCC TGT GGG
235 P E S G L S R N N P H T R
CCA GAA TCA GGC CTG TCA AGA AAT AAC CCT CAT ACC AGA
274 E I F R R R F R Q F C Y Q
GAG ATC TTT CGT AGA CGC TTC AGG CAG TTC TGC TAT CAG
313 E S P G P R E A L Q R L Q
GAG TCC CCT GGG CCC CGG GAG GCT CTT CAA AGA CTC CAG
352 E L C H Q W L R P E M H T
GAG CTC TGC CAT CAG TGG CTG AGA CCA GAG ATG CAC ACC
391 K E Q I L E L L V L E Q F
AAG GAG CAG ATC CTA GAG CTG CTG GTG CTG GAG CAG TTC
430 L T I L P E E L Q A W V R
CTG ACT ATC CTG CCT GAG GAG CTC CAG GCC TGG GTC AGA
469 Q H R P V S G E E A V T V
CAG CAC CGT CCT GTG AGT GGA GAG GAG GCA GTG ACT GTG
508 L E D L E R E L D D P G E
CTG GAG GAT TTG GAG AGA GAG CTG GAT GAC CCA GGA GAG
```

FIG. 6A



Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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547	Q	V	L	S	H	A	H	E	Q	E	E	F	V
	CAG	GTC	CTG	AGC	CAT	GCT	CAT	GAA	CAG	GAA	GAG	TTT	GTA
586	K	E	K	A	T	P	G	A	A	Q	E	S	S
	AAG	GAG	AAG	GCA	ACT	CCA	GGA	GCA	GCT	CAG	GAG	TCA	TCA
625	N	D	Q	F	Q	T	L	E	E	Q	L	G	Y
	AAT	GAC	CAA	TTC	CAA	ACC	TTG	GAA	GAG	CAG	CTT	GGG	TAT
664	N	L	R	E	V	C	P	V	Q	E	I	D	G
	AAT	TTG	CGA	GAG	GTG	TGC	CCA	GTT	CAA	GAG	ATT	GAT	GGC
703	K	A	G	T	W	N	V	E	L	A	P	K	R
	AAG	GCT	GGG	ACT	TGG	AAT	GTG	GAG	TTA	GCC	CCA	AAG	AGG
742	E	I	S	Q	E	V	K	S	L	I	Q	V	L
	GAG	ATT	TCT	CAG	GAA	GTG	AAA	TCT	CTT	ATA	CAA	GTT	CTT
781	G	K	Q	N	G	N	I	T	Q	I	P	E	Y
	GGA	AAA	CAG	AAT	GGT	AAT	ATT	ACT	CAG	ATT	CCT	GAG	TAT
820	G	D	T	C	D	R	E	G	R	L	E	K	Q
	GGA	GAT	ACC	TGT	GAC	CGT	GAG	GGC	AGA	TTG	GAA	AAG	CAA
859	R	V	S	S	S	V	E	R	P	Y	I	C	S
	AGG	GTG	AGC	TCT	TCA	GTG	GAG	AGA	CCC	TAT	ATC	TGT	AGT
898	E	C	G	K	S	F	T	Q	N	S	I	L	I
	GAA	TGT	GGA	AAA	AGC	TTC	ACC	CAG	AAT	TCC	ATC	CTT	ATC
937	E	H	Q	R	T	H	T	G	E	K	P	Y	E
	GAG	CAC	CAG	AGA	ACA	CAC	ACA	GGT	GAG	AAG	CCT	TAT	GAA
976	C	D	E	C	G	R	A	F	S	Q	R	S	G
	TGT	GAT	GAG	TGT	GGG	CGG	GCC	TTC	AGC	CAG	AGG	TCA	GGC
1015	L	F	Q	H	Q	R	L	H	T	G	E	K	R
	CTA	TTC	CAG	CAC	CAG	AGA	CTC	CAC	ACT	GGG	GAG	AAG	CGC
1054	Y	Q	C	S	V	C	G	K	A	F	S	Q	N
	TAC	CAG	TGC	AGT	GTT	TGT	GGC	AAA	GCC	TTC	AGC	CAG	AAT
1093	A	G	L	F	H	H	L	R	I	H	T	G	E
	GCC	GGG	CTT	TTC	CAT	CAC	CTC	AGA	ATT	CAC	ACT	GGG	GAG

FIG. 6B



Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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1132	K	P	Y	Q	C	N	Q	C	N	K	S	F	S
	AAG	CCT	TAC	CAG	TGC	AAT	CAG	TGC	AAT	AAG	AGT	TTT	AGT
1171	R	R	S	V	L	I	K	H	Q	R	I	H	T
	CGA	CGT	TCA	GTC	CTC	ATT	AAG	CAT	CAG	AGA	ATT	CAC	ACT
1210	G	E	R	P	Y	E	C	E	E	C	G	K	N
	GGA	GAG	AGA	CCT	TAT	GAA	TGT	GAA	GAA	TGT	GGC	AAG	AAC
1249	F	I	Y	H	C	N	L	I	Q	H	R	K	V
	TTC	ATT	TAC	CAT	TGC	AAC	CTA	ATC	CAG	CAT	CGG	AAA	GTC
1288	H	P	V	A	E	S	S	*					
	CAC	CCA	GTG	GCT	GAA	TCA	AGC	TAG	ctc	ctt	gga	aca	ggt
1327	agg												

FIG. 6C



Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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C2H2 ZINC FINGERS

FIG. 7



Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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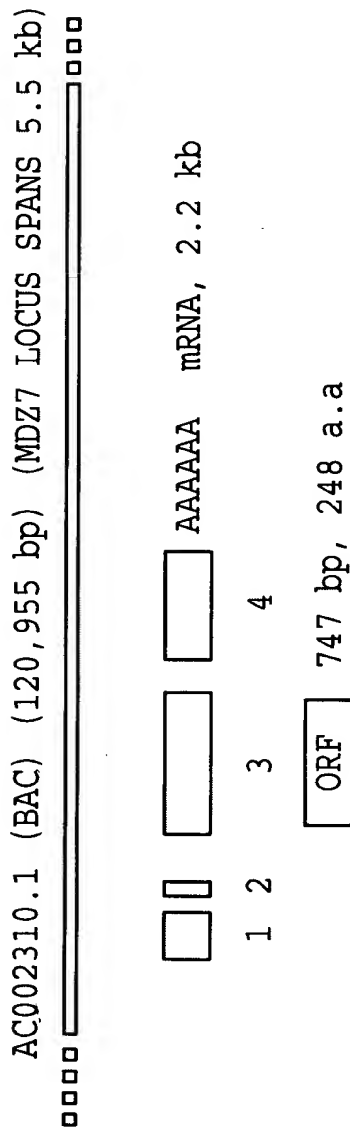


FIG. 8



Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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nt: SEQ ID NO: 4407

aa: SEQ ID NO: 4409

```
1  cc tgt tcc cgc tgc ccc tcg ggc tgg cac tgc cag gag
39  tac tca gag ctc aaa gct ggg atc tgc agt ccc tta ccc
78  act cag tgc acg ccg cct aag gct ttg cgc ttc acc ttt
117 act cac ctc gaa gcc ctg gac atc cgc atc tgc cct aag
156 act tct cac ctc agt agc aga agg aag tcg cgt cag ctg
195 gcc aca gcc tct ctc cta gga gac cgt ccg gga aaa gcg
234 agt cag ggt aga ccc tga ggc ccc tca gct ccg gct att
273 ttc aga tct gtc gct cct tca ccc tca gcc ttt caa aca
312 ggc cac tcc aaa aaa aag ccc aat cac agc ctt cct tct
351 tct cct ggc ctt ccg gca ctg tcc aat caa cgt acg cca
390 tct atc gga ttt tca gtt ccc aaa ccc gct ttt atc tcg
429 tgg gtg gaa gga gaa gtg gag gcg tgg agc ccg gag gcc
468 cag gat ccc gac ggt gag agc tct gca gct ttc agc agg
507 ggc caa gga cag gaa gca gga tcc agg gat ggg aat gag
546 aag aag gaa agg ctg aag aag tgt cca aaa caa aaa gag
585 gtg gcg cat gaa gtg gct gtc aag gag tgg tgg ccc agc
624 gtc gcc tgc cca gag ttc tgc aac cct agg cag agc ccc
663  M   N   P   W   L   K   D   T   L   T   R   R   L
    ATG AAT CCC TGG CTC AAG GAC ACT CTG ACC CGA AGA CTG
703  P   H   S   C   P   D   C   G   R   N   F   S   Y
    CCC CAC TCT TGC CCA GAC TGT GGC CGC AAC TTC AGC TAC
742  P   S   L   L   A   S   H   Q   R   V   H   S   G
    CCT TCC CTC CTG GCC AGC CAC CAG CGG GTC CAC TCC GGG
```

FIG. 9A



Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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781	E	R	P	F	S	C	G	Q	C	Q	A	R	F
	GAG	CGG	CCC	TTC	TCC	TGC	GGC	CAG	TGT	CAG	GCG	CGT	TTC
820	S	Q	R	R	Y	L	L	Q	H	Q	F	I	H
	TCC	CAG	CGC	AGG	TAC	CTG	CTC	CAG	CAT	CAG	TTC	ATC	CAC
859	T	G	E	K	P	Y	P	C	P	D	C	G	R
	ACC	GGC	GAG	AAG	CCC	TAC	CCC	TGC	CCC	GAC	TGC	GGG	CGC
898	R	F	R	Q	R	G	S	L	A	I	H	R	R
	CGC	TTC	CGC	CAG	AGG	GGT	TCC	CTG	GCT	ATC	CAC	AGG	CGG
937	A	H	T	G	E	K	P	Y	A	C	S	D	C
	GCT	CAC	ACC	GGG	GAG	AAG	CCT	TAC	GCG	TGC	TCA	GAC	TGC
976	K	S	R	F	T	Y	P	Y	L	L	A	I	H
	AAG	AGT	CGC	TTC	ACT	TAC	CCC	TAC	CTG	CTG	GCC	ATC	CAC
1015	Q	R	K	H	T	G	E	K	P	Y	S	C	P
	CAG	CGC	AAG	CAC	ACG	GGC	GAG	AAG	CCC	TAC	AGC	TGC	CCC
1054	D	C	S	L	R	F	A	Y	T	S	L	L	A
	GAT	TGC	AGC	CTC	CGT	TTC	GCC	TAC	ACC	TCC	CTG	CTG	GCC
1093	I	H	R	R	I	H	T	G	E	K	P	Y	P
	ATC	CAC	AGG	CGC	ATA	CAC	ACC	GGC	GAG	AAG	CCC	TAC	CCC
1132	C	P	D	C	G	R	R	F	T	Y	S	S	L
	TGT	CCT	GAC	TGC	GGC	CGC	CGC	TTC	ACC	TAT	TCT	TCC	CTC
1171	L	L	S	H	R	R	I	H	S	D	S	R	P
	CTC	CTC	AGT	CAC	CGG	CGC	ATT	CAC	TCC	GAC	AGC	CGG	CCC
1210	F	P	C	V	E	C	G	K	G	F	K	R	K
	TTC	CCC	TGC	GTG	GAG	TGT	GGG	AAA	GGC	TTC	AAG	CGC	AAG
1249	T	A	L	E	A	H	R	W	I	H	R	S	C
	ACC	GCC	CTG	GAA	GCC	CAT	CGG	TGG	ATC	CAC	CGC	TCC	TGC
1288	S	E	R	R	A	W	Q	Q	A	V	V	G	R
	AGC	GAG	AGG	CGC	GCG	TGG	CAG	CAG	GCC	GTG	GTG	GGG	CGT
1327	S	E	P	I	P	V	L	G	G	K	D	P	P
	TCA	GAG	CCC	ATC	CCT	GTT	TTG	GGA	GGC	AAG	GAT	CCC	CCA
1366	V	H	F	R	H	F	P	D	I	F	Q	E	C
	GTT	CAC	TTC	CGG	CAC	TTT	CCA	GAT	ATA	TTT	CAA	GAG	TGT
1405	G	*											
	GGG	TGA	tgg	cgt	tca	cac	aaa	ctg	gtc	agc	gtt	tcc	ctg

FIG. 9B

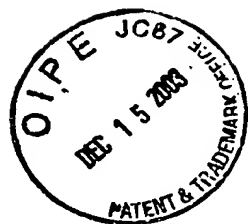


Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

19/32

1443 gag agg aag agg caa gat att tgc atg ttc cct gga ttt
1482 tgt att ttt tga taa aga tat att ctt ggg cca cag tag
1521 ctg gag ata taa tgc cgg agg att ctt ttt ttt ttt ttt
1560 ttg aga cag agt ctg tct cta ttg cct ggg ctg gag tgc
1599 agt ggc cca agc tac gct cac tgc aag ctc cac ctc ctg
1638 ggt tca cac cat tct cct gct tca gtc tcc cga gta gct
1677 gga att aca agc acc cgc cac cac gcc caa cta ata ttt
1716 tgt att ttt agt aga gac ggg ggt ttc acc gtg tta gcc
1755 agg atg gtc tcg atc tcc tga ctt cgt gat cct ccc gcc
1794 tcg gcc tcc caa agt gct ggg att aca ggc gtg agc cac
1833 tgc acc cag cct ctt ttt ttt ttt gag atg gag ttt cgc
1872 tct tgt tgc cca ggc tag agt gca atg gca tga tct tgg
1911 ctc act gca acc tcc gcc tcc tag gtt caa gcg att ctc
1950 ctg ccc cag cct ctt gag tag ctg gga tta cag gca ccc
1989 acg acc atg cct ggc taa ttg cat ttt tac tag aga cag
2028 gtt tca cca tgt tgg cca ggc tgg tct cca att cct gac
2067 ctc agg tga tcc acc cga ctt ggc ctc cca aag ttc tgg
2106 gat tac att ttt ttt tta aag aaa gaa taa att aat tgt
2145 gat taa agt tga aat caa ggc ata gtt aaa aaa aaa aaa
2184 aaa aaa aaa aaa aaa nnc ctg ttc ccg ctg ccc ctc ggg
2223 ctg gca ctg cca gga gta ctc aga gct caa agc tgg gat
2262 ctg cag tcc ctt acc cac tca gtg cac gcc gcc taa ggc
2301 ttt gcg ctt cac ctt tac tca cct cga agc cct gga cat
2340 ccg cat ctg ccc taa gac ttc tca cct cag tag cag aag
2379 gaa gtc gcg tca gct ggc cac agc ctc tct cct agg aga
2418 ccg tcc ggg aaa agc gag tca ggg tag acc ctg agg ccc

FIG. 9C

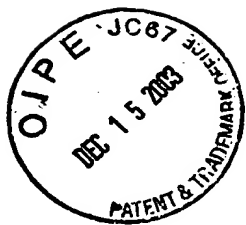


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Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

20/32

2457 ctc agc tcc ggc tat ttt cag atc tgt cgc tcc ttc acc
2496 ctc agc ctt tca aac agg cca ctc caa aaa aaa gcc caa
2535 tca cag cct tcc ttc ttc tcc tgg cct tcc ggc act gtc
2574 caa tca acg tac gcc atc tat cgg att ttc agt tcc caa
2613 acc cgc ttt tat ctc gtg ggt gga agg aga agt gga ggc
2652 gtg gag ccc gga ggc cca gga tcc cga cgg tga gag ctc
2691 tgc agc ttt cag cag ggg cca agg aca gga agc agg atc
2730 cag gga tgg gaa tga gaa gaa gga aag gct gaa gaa gtg
2769 tcc aaa aca aaa aga ggt ggc gca tga agt ggc tgt caa
2808 gga gtg gtg gcc cag cgt cgc ctg ccc aga gtt ctg caa
2847 ccc tag gca gag ccc cat gaa tcc ctg gct caa gga cac
2886 tct gac ccg aag act gcc cca ctc ttg ccc aga ctg tgg
2925 ccg caa ctt cag cta ccc ttc cct cct ggc cag cca cca
2964 gcg ggt cca ctc cgg gga gcg gcc ctt ctc ctg cgg cca
3003 gtg tca ggc gcg ttt ctc cca gcg cag gta cct gct cca
3042 gca tca gtt cat cca cac cgg cga gaa gcc cta ccc ctg
3081 ccc cga ctg cgg gcg ccg ctt ccg cca gag ggg ttc cct
3120 ggc tat cca cag gcg ggc tca cac cgg gga gaa gcc tta
3159 cgc gtg ctc aga ctg caa gag tcg ctt cac tta ccc cta
3198 cct gct ggc cat cca cca gcg caa gca cac ggg cga gaa
3237 gcc cta cag ctg ccc cga ttg cag cct ccg ttt cgc cta
3276 cac ctc cct gct ggc cat cca cag gcg cat aca cac cgg
3315 cga gaa gcc cta ccc ctg tcc tga ctg cgg ccg ccg ctt
3354 cac cta ttc ttc cct cct cct cag tca ccg gcg cat tca
3393 ctc cga cag ccg gcc ctt ccc ctg cgt gga gtg tgg gaa
3432 agg ctt caa gcg caa gac cgc cct gga agc cca tcg gtg

FIG. 9D

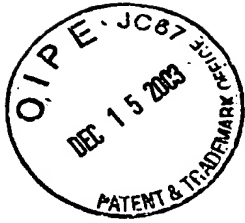


Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

21/32

3471 gat cca ccg ctc ctg cag cga gag gcg cgc gtg gca gca
3510 ggc cgt ggt ggg gcg ttc aga gcc cat ccc tgt ttt ggg
3549 agg caa gga tcc ccc agt tca ctt ccg gca ctt tcc aga
3588 tat att tca aga gtg tgg gtg atg gcg ttc aca caa act
3627 ggt cag cgt ttc cct gga gag gaa gag gca aga tat ttg
3666 cat gtt ccc tgg att ttg tat ttt ttg ata aag ata tat
3705 tct tgg gcc aca gta gct gga gat ata atg ccg gag gat
3744 tct ttt ttt ttt ttt ttt gag aca gag tct gtc tct att
3783 gcc tgg gct gga gtg cag tgg ccc aag cta cgc tca ctg
3822 caa gct cca cct cct ggg ttc aca cca ttc tcc tgc ttc
3861 agt ctc ccg agt agc tgg aat tac aag cac ccg cca cca
3900 cgc cca act aat att ttg tat ttt tag tag aga cgg ggg
3939 ttt cac cgt gtt agc cag gat ggt ctc gat ctc ctg act
3978 tcg tga tcc tcc cgc ctc ggc ctc cca aag tgc tgg gat
4017 tac agg cgt gag cca ctg cac cca gcc tct ttt ttt ttt
4056 tga gat gga gtt tcg ctc ttg ttg ccc agg cta gag tgc
4095 aat ggc atg atc ttg gct cac tgc aac ctc cgc ctc cta
4134 ggt tca agc gat tct cct gcc cca gcc tct tga gta gct
4173 ggg att aca ggc acc cac gac cat gcc tgg cta att gca
4212 ttt tta cta gag aca ggt ttc acc atg ttg gcc agg ctg
4251 gtc tcc aat tcc tga cct cag gtg atc cac ccg act tgg
4290 cct ccc aaa gtt ctg gga tta cat ttt ttt ttt aaa gaa
4329 aga ata aat taa ttg tga tta aag ttg aaa tca agg cat
4368 agt taa aaa aaa aaa aaa aaa aaa aaa a

FIG. 9E



Applicants: Shannon et al.
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

AEOMICA-012

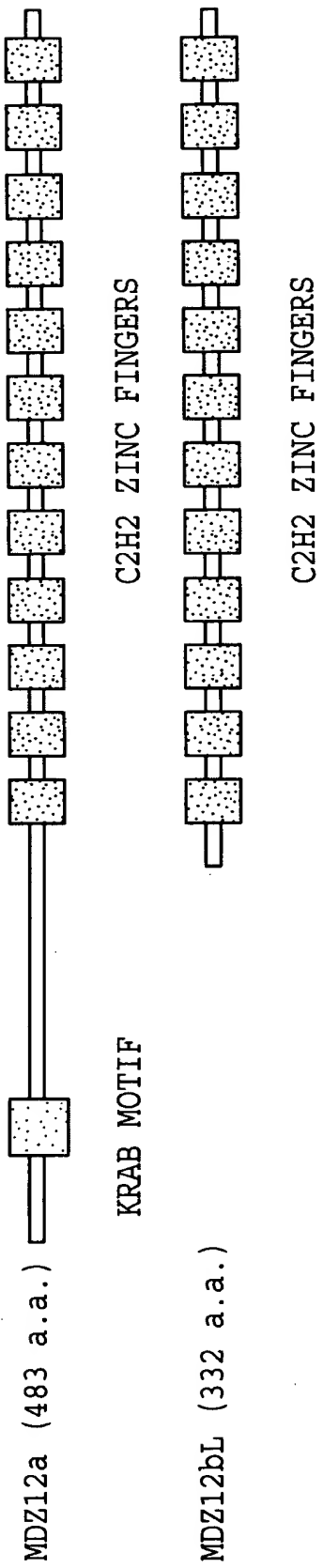
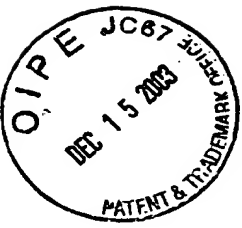


FIG. 10A

KRAB MOTIF		10	20	30	40	50	60
CONSENSUS		*.....					
MDZ12	1	VTFFEDVAVYFSQEEWEQLDPAQKNLY-RDVMLENYSNLSVLG-FKVPKPDLLISQLEQGEEPPWI					61
gi 12643434	1	-----mwlgtsqkslpgghclenplqechpaqlaeewalkGISRPSVISQPEQKEEPWV					53
gi 141686	28	VTFKDVIIVDFTQEEWKQLDPGQDLF-RDVTLENYTHLVSIG-LQVSKPDVISQLEQGTEPWI					88
gi 549835	1	-----DFTQEEWGQLDPTQRILY-RDVMLETFGYLLSIG-PELPKPEVISQLEQGTELWV					53
gi 3445181	14	VTFKDVFVDFTRREEWKLDDTAQQIVY-RNVMLENYKNLVSIG-YQLTKPDVILRLKGEPPWL					74
gi 141685	20	VTFGDVAVDFSQEEWEWLNPIQRNLY-RKVMLENYRNLASLG-LCVSKPDVISLLEQCKEPT					80
gi 1731444	4	VTFGDVAVHFSREEWQCLDPGQALY-REVMLENHSSVAGLAGFLVFKPELISRLEQGEEPPW					65
gi 6137309	8	FSFDDLSDVDFQKEWQLDDPSQKNLY-KDVMLENYSSLSVLG-YEVMKPDVIFKLEEGEEPPW					68
gi 3511122	237	VTFKDVAVCFSQDQWSDDLPTQKEFYGYVLEEDCGIVVSLsf-PIPRPDEISQV-REEEPWV					297
	1	MAFEDVAVYFSQEEWGGLDDTAQALY-RRVMLDNFALVASLG1-STSRPRVVIQLERGEPPW					61

FIG. 10B



Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

AC018946 (BAC, 173 kb)

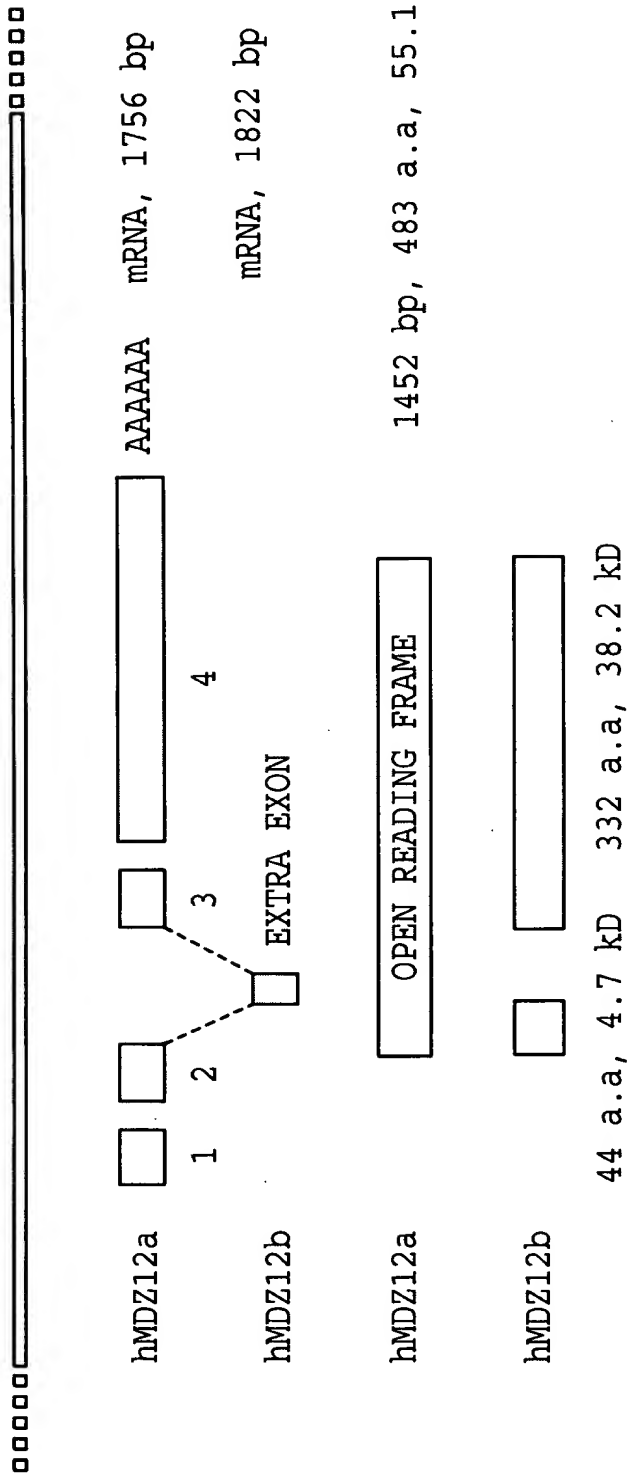


FIG. 11

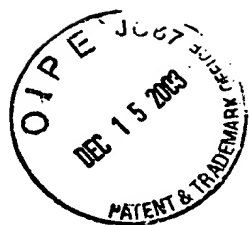


24/32

nt: SEQ ID NO: 5770
aa: SEQ ID NO: 5772

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1  gaa tcc cgg tcg ggt tct ggg agg cac cgc ctc ggg gtt
40  gcg ggc cgg gtg cgg ctc ggc ggt gga gga ctc act tcc
79  tgc tcc atc ccc ggc tgg gcc ctg ggg cgg aac tga tga
118  cgc ttg ata  M   W   L   G   T   S   G   K   S   G
      ATG TGG CTG GGG ACT TCA GGG AAG AGT GGG
157  TTA CCT GGA  C   H   C   L   E   N   P   L   Q   E   C
      TTA GAG AAT CCT CTC CAG GAA TGC
196  CAC CCA GCA  C   Q   L   E   E   W   A   L   K   G   I
      CAC CCA GCA CAG TTA GAA GAA TGG GCT CTC AAA GGA ATT
235  TCC AGG CCT  S   R   P   S   V   I   S   Q   P   E   Q   K   E
      TCC AGG CCT AGT GTA ATC TCC CAG CCG GAG CAG AAA GAA
274  GAG CCA TGG  E   P   W   V   L   P   L   Q   N   F   E   A   R
      GAG CCA TGG GTC CTA CCA CTC CAA AAC TTT GAG GCG AGG
313  AAG ATC CCG  K   I   P   R   E   S   H   T   D   C   E   H   Q
      AAG ATC CCG AGG GAA AGC CAC ACA GAC TGT GAG CAT CAG
352  GTG GCA AAG  V   A   K   L   N   Q   D   N   S   E   T   A   E
      GTG GCA AAG CTC AAT CAG GAC AAT TCT GAA ACA GCA GAA
391  CAA TGT GGA  Q   C   G   T   S   S   E   R   T   N   K   D   L
      CAA TGT GGA ACA TCC TCA GAA AGG ACC AAT AAA GAT CTT
430  TCT CAT ACT  S   H   T   L   S   W   G   G   N   W   E   Q   G
      TCT CAT ACT CTT AGT TGG GGA GGA AAC TGG GAG CAA GGC
469  CTA GAA TTA  L   E   L   E   G   Q   H   G   T   L   P   G   E
      CTA GAA TTA GAA GGG CAA CAT GGA ACC CTT CCA GGA GAG
508  GGC CAG CTG  G   Q   L   E   S   F   S   Q   E   R   D   L   N
      GGC CAG CTG GAG TCC TTT TCA CAG GAG AGG GAT TTA AAC
547  AAG CTC CTG  K   L   L   D   G   Y   V   G   E   K   P   M   C
      AAG CTC CTG GAT GGA TAT GTA GGA GAG AAG CCT ATG TGT
```

FIG. 12A

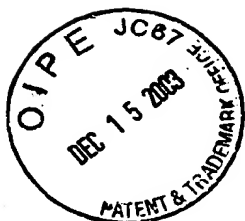


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CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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586	A	E	C	G	K	S	F	N	Q	S	S	Y	L
	GCA	GAA	TGC	GGG	AAA	AGC	TTT	AAC	CAG	AGT	TCC	TAT	CTC
625	I	R	H	L	R	T	H	T	G	E	R	P	Y
	ATA	AGA	CAC	CTA	AGA	ACC	CAC	ACT	GGC	GAG	AGG	CCC	TAT
664	T	C	I	E	C	G	K	G	F	K	Q	S	S
	ACG	TGC	ATT	GAG	TGT	GGG	AAA	GGC	TTC	AAA	CAG	AGC	TCA
703	D	L	V	T	H	R	R	T	H	T	G	E	K
	GAC	CTT	GTC	ACC	CAT	CGC	AGA	ACA	CAC	ACA	GGA	GAG	AAG
742	P	Y	Q	C	K	G	C	E	K	K	F	S	D
	CCC	TAC	CAA	TGC	AAG	GGG	TGT	GAG	AAG	AAA	TTC	AGC	GAC
781	S	S	T	L	I	K	H	Q	R	T	H	T	G
	AGC	TCA	ACA	CTC	ATC	AAA	CAT	CAG	AGA	ACC	CAC	ACA	GGG
820	E	R	P	Y	E	C	P	E	C	G	K	T	F
	GAG	AGA	CCC	TAT	GAG	TGC	CCA	GAG	TGT	GGA	AAG	ACT	TTT
859	G	R	K	P	H	L	I	M	H	Q	R	T	H
	GGG	CGG	AAG	CCA	CAC	CTC	ATA	ATG	CAC	CAA	AGA	ACC	CAC
898	T	G	E	K	P	Y	A	C	L	E	C	H	K
	ACA	GGC	GAG	AAG	CCC	TAC	GCG	TGC	CTG	GAA	TGT	CAC	AAA
937	S	F	S	R	S	S	N	F	I	T	H	Q	R
	AGC	TTC	AGT	CGA	AGC	TCA	AAT	TTC	ATC	ACT	CAC	CAG	AGG
976	T	H	T	G	V	K	P	Y	R	C	N	D	C
	ACC	CAC	ACA	GGG	GTG	AAG	CCT	TAC	AGG	TGT	AAT	GAC	TGT
1015	G	E	S	F	S	Q	S	S	D	L	I	K	H
	GGG	GAG	AGT	TTT	AGC	CAG	AGC	TCG	GAT	TTG	ATT	AAG	CAC
1054	Q	R	T	H	T	G	E	R	P	F	K	C	P
	CAA	CGA	ACC	CAC	ACG	GGA	GAA	CGG	CCC	TTC	AAA	TGC	CCG
1093	E	C	G	K	G	F	R	D	S	S	H	F	V
	GAG	TGC	GGG	AAG	GGC	TTC	AGA	GAT	AGT	TCT	CAT	TTT	GTA
1132	A	H	M	S	T	H	S	G	E	R	P	F	S
	GCT	CAC	ATG	AGC	ACT	CAT	TCA	GGA	GAG	AGG	CCT	TTC	AGT
1171	C	P	D	C	H	K	S	F	S	Q	S	S	H
	TGT	CCT	GAC	TGC	CAC	AAA	AGC	TTC	AGT	CAG	AGC	TCA	CAT
1210	L	V	T	H	Q	R	T	H	T	G	E	R	P
	TTG	GTC	ACG	CAC	CAA	AGA	ACA	CAC	ACA	GGT	GAG	AGA	CCT

FIG. 12B



Applicants: Shannon et al. AEOMICA-012
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Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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```
1249  F  K  C  E  N  C  G  K  G  F  A  D  S
      TTT AAG TGC GAA AAC TGT GGG AAA GGA TTC GCC GAC AGC

1288  S  A  L  I  K  H  Q  R  I  H  T  G  E
      TCC GCC CTC ATT AAG CAC CAA CGA ATC CAC ACC GGA GAA

1327  R  P  Y  K  C  G  E  C  G  K  S  F  N
      AGA CCC TAC AAA TGT GGA GAG TGT GGG AAG AGC TTC AAT

1366  Q  S  S  H  F  I  T  H  Q  R  I  H  L
      CAG AGC TCC CAC TTT ATT ACC CAT CAG CGA ATC CAC TTA

1405  G  D  R  P  Y  R  C  P  E  C  G  K  T
      GGA GAC AGG CCC TAT CGA TGT CCT GAG TGT GGC AAG ACC

1444  F  N  Q  R  S  H  F  L  T  H  Q  R  T
      TTC AAT CAG CGT TCC CAT TTC CTC ACA CAC CAG AGA ACG

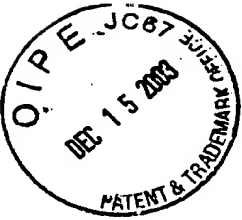
1483  H  T  G  E  K  P  F  H  C  S  K  C  N
      CAT ACA GGA GAA AAA CCT TTC CAC TGT AGT AAA TGT AAC

1522  K  S  F  R  Q  K  A  H  L  L  C  H  Q
      AAG AGC TTC CGT CAG AAA GCG CAT CTT TTA TGC CAT CAA

      N  T  H  L  I  *

1561  AAC ACC CAT TTG ATT TAG gaa gta gtc ttt ggt gtt cag
1600  ctg ctc cct tgc aca ttt tca ttg cta ctg tct tca agc
1639  acc cca aat aga gaa aac ctg ggc gtc agt ggc tca att
1678  tgg gcc ctg atc tat tct ccc tct ttc ttg tct atg tta
1717  taa cag aga gga taa act taa agg gtc caa ata acg gtc
1756  caa aaa aaa aaa aaa aaa aaa a
```

FIG. 12C



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For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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nt: SEQ ID NO: 6938
aa: SEQ ID NO: 6939 and 6940

M	W	L	G	T	S	G	K	S	G	L	P	G	13
ATG	TGG	CTG	GGG	ACT	TCA	GGG	AAG	AGT	GGG	TTA	CCT	GGA	39
H	C	L	E	N	P	L	Q	E	C	H	P	A	26
CAC	TGC	TTA	GAG	AAT	CCT	CTC	CAG	GAA	TGC	CAC	CCA	GCA	78
Q	L	E	E	W	A	L	K	G	L	G	W	T	39
CAG	TTA	GAA	GAA	TGG	GCT	CTC	AAA	GGA	CTG	GGT	TGG	ACT	117
L	T	S	A	T	*								45
CTC	ACC	TCT	GCC	ACT	TAA	cttctgagacttctgaggtctttgtgg							162
aaaaggagaatttccaggcctagtgtaatctcccagccggagcagaaagaag													214
agccatgggtcctaccactccaaaactttgaggcgaggaagatcccagggga													266
aagccacacagactgtgagcatcaggtggcaaagctcaatcaggacaattct													318
gaaacagcagaacaatgtggaacatcctcagaaaggaccaataaagatcttt													370
ctcatactcttagttggggaggaaactgggagcaaggcctagaattagaagg													422
gcaacatggaacccttccaggagagggccagctggagtccttttccacaggag													474
agggatttaacaagctcctggatggatatgtaggagagaagcctATG													2
A	E	C	G	K	S	F	N	Q	S	S	Y	L	15
GCA	GAA	TGC	GGG	AAA	AGC	TTT	AAC	CAG	AGT	TCC	TAT	CTC	564
I	R	H	L	R	T	H	T	G	E	R	P	Y	28
ATA	AGA	CAC	CTA	AGA	ACC	CAC	ACT	GGC	GAG	AGG	CCC	TAT	603
T	C	I	E	C	G	K	G	F	K	Q	S	S	41
ACG	TGC	ATT	GAG	TGT	GGG	AAA	GGC	TTC	AAA	CAG	AGC	TCA	642
D	L	V	T	H	R	R	T	H	T	G	E	K	54
GAC	CTT	GTC	ACC	CAT	CGC	AGA	ACA	CAC	ACA	GGA	GAG	AAG	681
P	Y	Q	C	K	G	C	E	K	K	F	S	D	67
CCC	TAC	CAA	TGC	AAG	GGG	TGT	GAG	AAG	AAA	TTC	AGC	GAC	720

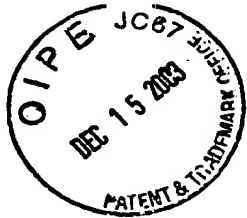
FIG. 13A



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CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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S	S	T	L	I	K	H	Q	R	T	H	T	G	80
AGC	TCA	ACA	CTC	ATC	AAA	CAT	CAG	AGA	ACC	CAC	ACA	GGG	759
E	R	P	Y	E	C	P	E	C	G	K	T	F	93
GAG	AGA	CCC	TAT	GAG	TGC	CCA	GAG	TGT	GGA	AAG	ACT	TTT	798
G	R	K	P	H	L	I	M	H	Q	R	T	H	106
GGG	CGG	AAG	CCA	CAC	CTC	ATA	ATG	CAC	CAA	AGA	ACC	CAC	837
T	G	E	K	P	Y	A	C	L	E	C	H	K	119
ACA	GGC	GAG	AAG	CCC	TAC	GCG	TGC	CTG	GAA	TGT	CAC	AAA	876
S	F	S	R	S	S	N	F	I	T	H	Q	R	132
AGC	TTC	AGT	CGA	AGC	TCA	AAT	TTC	ATC	ACT	CAC	CAG	AGG	915
T	H	T	G	V	K	P	Y	R	C	N	D	C	145
ACC	CAC	ACA	GGG	GTG	AAG	CCT	TAC	AGG	TGT	AAT	GAC	TGT	954
G	E	S	F	S	Q	S	S	D	L	I	K	H	158
GGG	GAG	AGT	TTT	AGC	CAG	AGC	TCG	GAT	TTG	ATT	AAG	CAC	993
Q	R	T	H	T	G	E	R	P	F	K	C	P	171
CAA	CGA	ACC	CAC	ACG	GGA	GAA	CGG	CCC	TTC	AAA	TGC	CCG	1032
E	C	G	K	G	F	R	D	S	S	H	F	V	184
GAG	TGC	GGG	AAG	GGC	TTC	AGA	GAT	AGT	TCT	CAT	TTT	GTA	1071
A	H	M	S	T	H	S	G	E	R	P	F	S	197
GCT	CAC	ATG	AGC	ACT	CAT	TCA	GGA	GAG	AGG	CCT	TTC	AGT	1110
C	P	D	C	H	K	S	F	S	Q	S	S	H	210
TGT	CCT	GAC	TGC	CAC	AAA	AGC	TTC	AGT	CAG	AGC	TCA	CAT	1149
L	V	T	H	Q	R	T	H	T	G	E	R	P	223
TTG	GTC	ACG	CAC	CAA	AGA	ACA	CAC	ACA	GGT	GAG	AGA	CCT	1188
F	K	C	E	N	C	G	K	G	F	A	D	S	236
TTT	AAG	TGC	GAA	AAC	TGT	GGG	AAA	GGA	TTC	GCC	GAC	AGC	1227
S	A	L	I	K	H	Q	R	I	H	T	G	E	249
TCC	GCC	CTC	ATT	AAG	CAC	CAA	CGA	ATC	CAC	ACC	GGA	GAA	1266
R	P	Y	K	C	G	E	C	G	K	S	F	N	262
AGA	CCC	TAC	AAA	TGT	GGA	GAG	TGT	GGG	AAG	AGC	TTC	AAT	1305
Q	S	S	H	F	I	T	H	Q	R	I	H	L	275
CAG	AGC	TCC	CAC	TTT	ATT	ACC	CAT	CAG	CGA	ATC	CAC	TTA	1344
G	D	R	P	Y	R	C	P	E	C	G	K	T	288
GGA	GAC	AGG	CCC	TAT	CGA	TGT	CCT	GAG	TGT	GGC	AAG	ACC	1383

FIG. 13B



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CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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F	N	Q	R	S	H	F	L	T	H	Q	R	T	301
TTC	AAT	CAG	CGT	TCC	CAT	TTC	CTC	ACA	CAC	CAG	AGA	ACG	1422
H	T	G	E	K	P	F	H	C	S	K	C	N	314
CAT	ACA	GGA	GAA	AAA	CCT	TTC	CAC	TGT	AGT	AAA	TGT	AAC	1461
K	S	F	R	Q	K	A	H	L	L	C	H	Q	327
AAG	AGC	TTC	CGT	CAG	AAA	GCG	CAT	CTT	TTA	TGC	CAT	CAA	1500
N	T	H	L	I	*								323
AAC	ACC	CAT	TTG	ATT	TAG								1518

FIG. 13C



Applicants: Shannon et al. AEOMICA-012
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Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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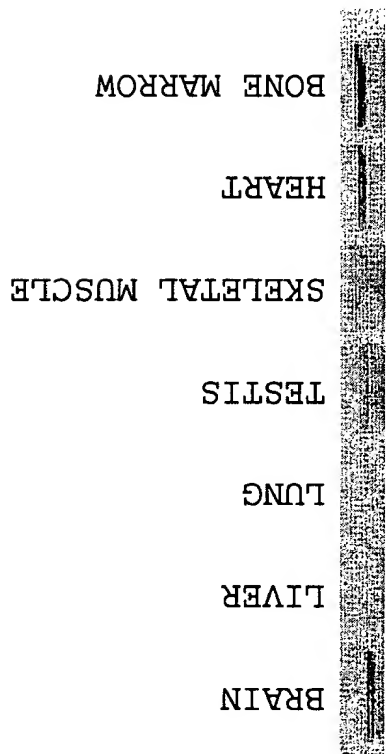


FIG. 14



Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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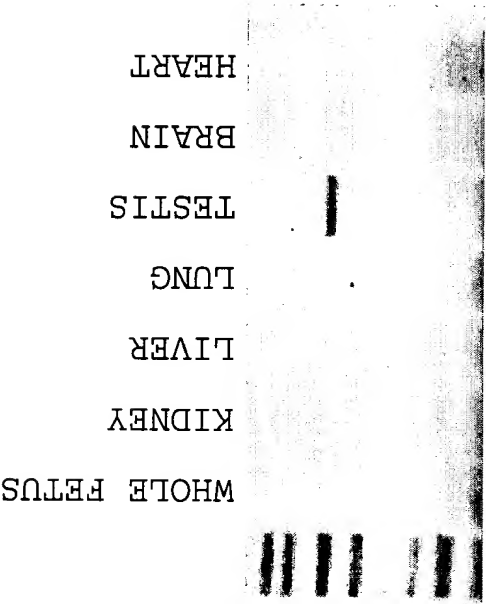


FIG. 15



Applicants: Shannon et al. AEOMICA-012
Serial No : 09/922,181
Filed : August 2, 2001
For : FOUR HUMAN ZINC-FINGER-
CONTAINING PROTEINS: MDZ3, MDZ4,
MDZ7 AND MDZ12

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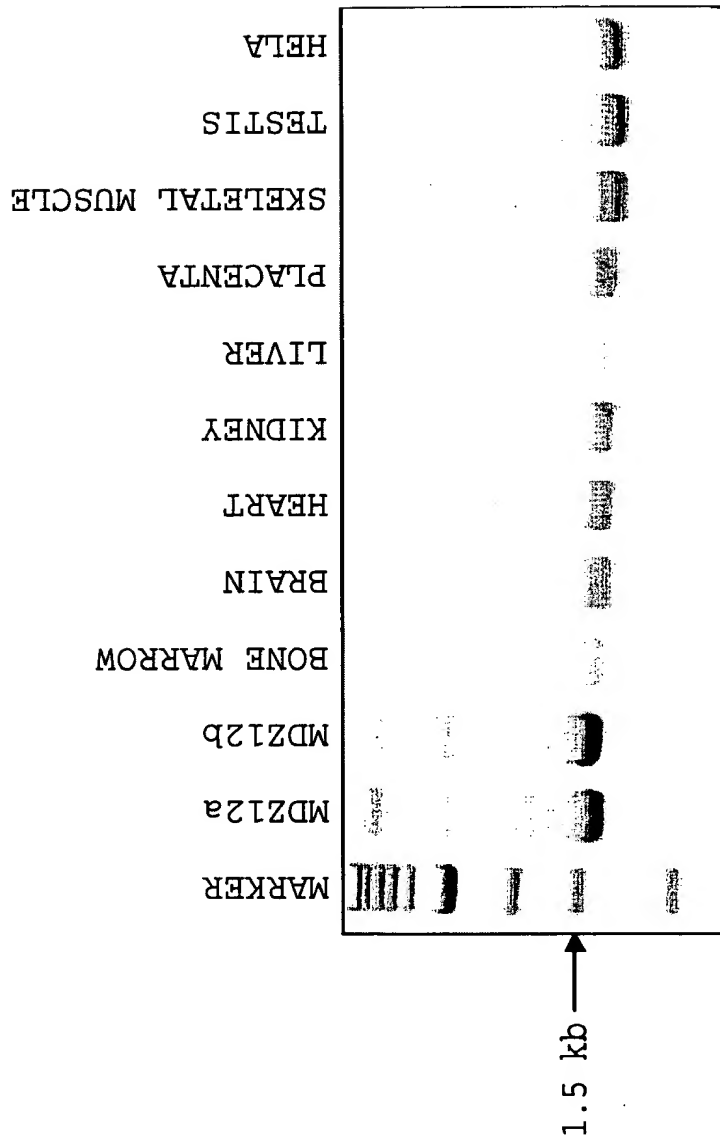


FIG. 16